REMARKS

This paper is in response to the official action mailed April 27, 2000.

I. SUPPORT FOR AMENDED CLAIMS

By the foregoing preliminary amendment, claim 1 has been amended to include a partial DNA sequence of the alanine dehydrogenase gene of *M. tuberculosis*. In order to make an accurate diagnosis of tuberculosis or other mycobacterial infections, it is not only important to carry out an enzymatic test for the presence or absence of an infection, but also to confirm a positive result by means of a DNA sequence. The amendment to claim 1 has been submitted to make explicit the claim of the combination of an enzymatic test kit and a DNA sequence for the purposes of diagnosis of *M. tuberculosis* and other mycobacterial infections.

Such an amendment to claim 1 is supported at several places in the specification. At page 4, lines 19-22 of the application, a method is disclosed for the identification and differentiation of cells, strains, and/or species of disease causing organisms of the *M. tuberculosis* complex, which can be performed using the DNA sequence of the amended claim 1. This method further references page 2, lines 22-27 of the application, which describes an enzymatic test kit for the determination of the activity of alanine dehydrogenase comprising L-alanine, NAD^+, PMS, and NBT. Thus, this method discloses the set of an enzymatic test kit for the determination of the activity of alanine dehydrogenase comprising L-alanine, NAD^+, PMS, and NBT, and a DNA sequence consisting of partial sequence of the alanine dehydrogenase gene of *M. tuberculosis*. In addition, such a set is further supported by page 5, lines 12-25 of the application, which discloses a method combining identification and isolation of *M. tuberculosis* and other mycobacteria, recovery of crude or purified genomic DNA or RNA, and digestion of alanine dehydrogenase gene fragments followed by amplification. Such a method discloses the use of the set comprising the enzymatic test kit and a DNA sequence of a partial sequence of the alanine dehydrogenase gene of *M. tuberculosis*, i.e., the set of the amended claim 1. Still further, on page 37, lines 5-7 of the application, the applicant discloses the combination of all features previously described in the application, i.e., the combination of the enzymatic test kit and the DNA sequence.

Further, claim 9 has been canceled, and the dependency of claim 10 (and thus those of claims 11-13 and 16) has been amended in view of the amendment to claim 1 and the cancellation of claim 9, thus merging Groups I and III.

No new matter has been added to the application.

II. RESPONSE TO RESTRICTION REQUIREMENT

In the official action, restriction was required between Group I (claim 1, directed to kits comprising L-alanine, NAD, PMS, and NBT), Group II (claims 2-8, 14-15, and 17-18, directed to methods of diagnosing mycobacterial infections comprising measuring alanine dehydrogenase activity) and Group III (claims 9-13 and 16, directed to methods for detecting mycobacterial infections by detection of nucleic acids). Reconsideration is respectfully requested.

The action stated that:

1) Groups I and II are related as product and process of use. The action stated that the inventions are distinct if "either or both of the following can be shown: (A) the process for using the product as claimed can be practiced with another materially different product or (B) that the product as claimed can be used in a materially different process using that product (MPEP § 806.05(h)).

The examiner stated that the claimed products may be employed in materially different processes. Thus, the examiner is taking the position of subpart (B) of M.P.E.P. § 806.05(h): the recited product as claimed can be used in a "materially different" process of using that product.

2) Groups I and III are unrelated. The action stated that inventions are unrelated if it can be shown that they (1) are not disclosed as capable of use together and (2) have different modes of operation, different functions, or different effects (M.P.E.P. § 806.04, M.P.E.P. § 808.01).

3) Groups II and III are drawn to patentably distinct methods. The examiner stated that the two groups were directed to methods that require one to perform unrelated, patentably distinct process steps. Although the examiner did not specify the section upon which the restriction requirement was drawn, it is believed the examiner was relying upon M.P.E.P. § 806(B), which states that where inventions are related as disclosed but distinct as claimed, restriction may be proper.

The applicants' undersigned attorney acknowledges the telephone message of April 12, 2000, requesting oral election to the above restriction requirement. The restriction requirement is traversed for the reasons stated below.

III. THE EFFECTS OF THE PATENT OFFICE'S POSITION ARE VARIOUS ADMISSIONS CONCERNING PATENTABILITY

A. GROUP I CLAIMS ARE PATENTABLE OVER A DISCLOSURE OF GROUP II METHOD, AND VICE VERSA

The effect of the examiner's position in the official action is that the Patent Office admits that Group I product claims are patentable over a disclosure of the processes of Group II of the official action, and *vice versa*. M.P.E.P. § 802.01 states that **the distinctness required for restriction means that the subjects, including "process and apparatus for its practice, ... ARE PATENTABLE (novel and unobvious) OVER EACH OTHER"** (emphasis in original). See also M.P.E.P. § 808.02, which states that where "related inventions are not patentably distinct as claimed, restriction ... is never proper." The Patent Office has also stated that "it is imperative the requirement should never be made where related inventions as claimed are not distinct." M.P.E.P. § 806. Only if there are processes materially different from (patentable over) those claimed in the application would restriction between these two groups be proper, since the rule is intended to avoid requiring the examiner to perform two searches for a single application.

Similarly, the Patent Office admits that the other groups are patentable over one another, including: (1) that the Group II process is patentable over any disclosure of the process of Group III, and (2) that the invention of Group I is patentable over any disclosure of the process of Group III, and *vice versa*.

These positions are necessary to entry of the restriction requirement by the Patent Office and may be relied upon by the applicants during examination of this and continuing applications, unless the restriction requirement is withdrawn. If the examiner is not taking these positions, then the restriction requirement should be withdrawn upon reconsideration.

IV. RESTRICTION IS NOT PROPER BETWEEN GROUPS I AND II BECAUSE THE EXAMINER HAS NOT SHOWN A MATERIALLY DIFFERENT PROCESS FOR USING THE CLAIMED PRODUCT

As stated above, the examiner has taken the position that the inventions of Group I and Group II are distinct because the product of Group I as claimed may be employed in a materially different process from that of Group II. Patent Office rules require that examples be provided in order to demonstrate processes and products materially different from those of the present application. See for example, M.P.E.P. § 803, M.P.E.P. § 806.05(h). The examiner provided an example of L-alanine being employed in an *in vitro* protein synthesis, while NAD, PMS, and NBT may be used in methods of measuring activity of a protein such as inosine 5'-monophosphate dehydrogenase.

The invention of Group I is drawn to an enzymatic test kit comprising L-alanine, NAD, PMS, and NBT, for the diagnosis of mycobacterial infections. While the examiner has provided examples of materially different processes using the individual components of the invention, no example has been cited using the combined components of the invention in a manner different from the processes as claimed. Thus, it is respectfully submitted that the restriction requirement should be withdrawn with respect to Group I and Group II because the Patent Office has not provided any example of allegedly materially different processes or products, as required by Patent Office rules. If the Office issues another official action making an allegation that the product may be employed in a materially different process, it is submitted that the applicants have convincingly traversed the requirement and, pursuant to M.P.E.P. § 806.05(h), the burden is on the examiner to support a viable alternative use or withdraw the requirement. Moreover, should the Patent Office comply with this requirement by providing examples, it is pointed out that the effect of a restriction requirement would be an admission that the claimed products and processes are patentable over a disclosure of any cited processes or products. (See Section I above.)

V. RESTRICTION IS NOT PROPER BETWEEN GROUPS I AND III BECAUSE THE INVENTIONS ARE DISCLOSED AS CAPABLE OF USE TOGETHER

The examiner has taken the position that Group I and Group III are unrelated, because the inventions are not disclosed as capable of use together and have different functions. It is the examiner's position that the reagents used in the invention of Group

I (L-alanine, NAD, PMS, and NBT) are disclosed as capable of use in methods of measuring alanine dehydrogenase activity, but not in the methods of detecting and differentiating the nucleic acids of the invention of Group III. In order for a restriction requirement to be proper under M.P.E.P. § 806.04, the two inventions must not be disclosed as capable of use together and have different modes of operation, different functions, or different effects. Thus, if the inventions are disclosed as capable of use together or have identical functions, then restriction is improper.

The applicant traverses the restriction requirement because the inventions of Group I and Group III are disclosed in the application as capable of use together. At page 4, lines 19-22 of the application, a method is disclosed for the identification and differentiation of cells, strains, and/or species of disease causing organisms of the *M. tuberculosis* complex, which can be performed using the DNA sequence of the amended claim 1. This method further references page 2, lines 22-27 of the application, which describes an enzymatic test kit for the determination of the activity of alanine dehydrogenase comprising L-alanine, NAD^+, PMS, and NBT. Thus, this method discloses the set of an enzymatic test kit for the determination of the activity of alanine dehydrogenase comprising L-alanine, NAD^+, PMS, and NBT, and a DNA sequence consisting of partial sequence of the alanine dehydrogenase gene of *M. tuberculosis*. Such a disclosure describes the use of the inventions of Group I and Group III together. Further, on page 5, lines 12-25 of the application, a method is disclosed combining identification and isolation of *M. tuberculosis* and other mycobacteria, recovery of crude or purified genomic DNA or RNA, and digestion of alanine dehydrogenase gene fragments, followed by amplification of the gene fragments. Still further, on page 37, lines 5-7 of the application, the applicant discloses the combination of all features previously described in the application, i.e., the combination of the enzymatic test kit and the DNA sequence. As stated above, in order to make an accurate diagnosis of tuberculosis or other mycobacterial infections, it is not only important to carry out an enzymatic test for the presence or absence of an infection, but also to confirm a positive result by means of a DNA sequence. This has been reflected in the provisionally amended claim 1 above, which claims the set of an enzymatic test kit and a DNA sequence for the purpose of diagnosis of tuberculosis and other mycobacterial infections. (See Section I above.) Thus, the applicant respectfully requests that the restriction requirement should be withdrawn with respect to Group I and Group III.

VI. RESTRICTION IS NOT PROPER BECAUSE CLAIM 1 IS A LINKING CLAIM AND EXAMINATION OF THE ENTIRE APPLICATION CAN BE MADE WITHOUT SERIOUS BURDEN

It is respectfully pointed out that the restriction requirement is improper because it does not meet the requirement that search and examination of the entire application must be a serious burden on the examiner. M.P.E.P. § 803 states:

> "If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to distinct or independent inventions."

The applicants traverse the restriction requirement on the ground that there is no evidence or allegation that search and examination of the entire application would be a serious burden on the examiner, as required.

It is submitted that a complete search directed to the subject matter of the claims of Group II or the claims of Group III would require a search directed to the subject matter of the claims of Group I, and vice versa. The claims comprising Group II recite the enzymatic test kit of claim 1. It is not seen how a complete search of the claims comprising Group II would not include a search of Group I. The official action did not address these linking claims, which recite a method of using the recited set. See M.P.E.P. § 809.03. M.P.E.P. § 809 states that linking claims must be examined with an elected invention, and if any linking claim is allowed, the restriction requirement must be withdrawn. Similarly, the claims comprising Group III recite the DNA sequence of the amended claim 1.

Since search and examination of the entire application can be made without serious burden on the examiner (and the Patent Office has not stated otherwise), it would be wasteful of the time, effort, and resources of both the applicants and the Patent Office to prosecute the method and article claims in separate applications. Search and examination of the three groups of claims together would be much more efficient than requiring the Patent Office and the applicants to do so separately in multiple applications.

In view of the foregoing, the applicants respectfully request that the restriction requirement be withdrawn upon reconsideration.

VII. PROVISIONAL ELECTION OF GROUP I

In order to satisfy 37 C.F.R. 1.143, the applicants hereby elect for examination on the merits, with traverse, the claims of Group I, i.e., claim 1, and urge that Group I

should be reformulated as amended claim 1 and claims 10-13 and 16. In doing so, the applicants do not intend to abandon the scope of the non-elected claims as originally filed, but may pursue the non-elected claims in a divisional application if the restriction requirement is not withdrawn upon reconsideration.

Respectfully submitted,

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